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Costs in the Textile Industry

By F. G. DANIELS

President and Managing Director, Dominion Textile Company, Ltd.

(Address given before Montreal Chapter, Nov. 22, 1928, along with exhibition of film illustrating operations in the textile industry.)

PROBABLY few discussions, whether formal or informal, between groups of business men, representing manufacturing interests, end without some discussion regarding the costing, or lack of costing methods of some manufacturers. While each may consider he has a system that suits him, it is all too evident, at times, that the majority are of a very haphazard nature, and, undoubtedly, many enterprises might have been saved from ruin or heavy losses had they been provided with a sound costing system.

This lack of a proper system on the part of one or more manufacturers in an industry reacts very frequently to the detriment, at least for a time, of those attempting to conduct business upon sane lines. It is much like motoring. You may be a good, careful driver, but the careless one may land you in the ditch, if nothing worse.

Your Vice-President, Mr. Peto, asked me some time ago to address you upon the methods adopted in the Textile Industry, and I will try and give you some idea of our methods, with the hope that some portion of our system may be found useful to others.

The film has given you a superficial idea of the process of cotton manufacturing, but does not reveal the wealth of detail, accuracy of adjustment and micrometer settings so necessary for the economical processing to obtain quality and production, together with the proper maintenance of the machinery. It has taken up so much of your time that I doubt whether you wish to listen to more than an outline of the costing methods adopted by our Company.

Before proceeding with the costing outline, it will be necessary to explain some of the terms that will be used. In cotton manufacturing everything is predicated on the per pound cost, based on the counts of yarns, twist, ends and picks, and yards per pound.

The definition of "counts" is—840 yds. of single yarn

or thread per pound, as it comes from the spinning frame, is called No. 1s counts—No. 10s, 8,400 yds., and so on.

Sliver is that portion of the process between the card and the slubber, that is without twist, and is also based upon 840 yds. to the pound.

Hank Roving is the term used for the card room fly frame process, and is similarly based.

The "ends" means the number of warp threads per inch running lengthwise of the cloth. This, multiplied by the width of the cloth, with allowance for extra selvedge ends, represents the total number of threads required for the cloth.

The "picks" means the number of threads per inch across the cloth, and known as "weft" or "filling."

The "Yards per pound" means the weight of the cloth as represented by the number of linear yards of a given fabric that will weigh one pound.

Purposes of Cost System

A costing system is intended for two purposes.

The first—a guide for selling value.

The second—for a comparison with actual results. The difference between the normal cost and the actual would represent the cost of non-production, due to any cause.

My understanding of the basis of such a costing system is one upon which every machine in the plant is rated to its normal operating capacity, and carries its proportion of all overhead charges.

Normal operating capacity is based upon 100% of possible nonstop production less the percentage of time necessary for replacing full bobbins with empty, or full loom beams with empty, cleaning time, etc.

Under such a system, when costing a fabric, the normal cost of operating such machines only as are required for the particular fabric, is taken into consideration. No allowance is made for any cause such as an unbalanced condition of the plant, causing idle machinery, breakdowns, lack of orders, etc.

The cost of a fabric is divided under three headings:—

1st. The manufacturing cost, exclusive of cotton.

2nd. Replacement cost of cotton to be used in the fabric.

3rd. The selling expense and customer's cash discount allowances.

Manufacturing Cost

The manufacturing cost is divided under three headings:—

1st. Labour, direct and indirect.
2nd. Mill supplies.
3rd. Overhead Charges.

As the requirements of this country are too small to permit the operation of an economical unit upon one cloth, the range of cloths to be made is decided upon, the necessary number of machines of the proper gauge is determined for each department, properly located to avoid crowding or unnecessary walking, and the buildings erected to house the machinery. Under our system, while each mill may have to process from 40 to more than 100 cloths, we cost upon the basis of a highly specialized mill making economically but one cloth. Therefore if we have to process a large quantity of a cloth using yarn heavier than standard, less machinery will be required in some portions of the process and more in others. If other cloths lighter than standard cannot be processed at the same time, the mill will be unbalanced, necessitating idle machinery.

A production sheet is prepared showing the expected production per machine and per process, based upon average counts for the plant. Each process outline also shows the production expected on each count above or below the average.

Our next step is to prepare a sheet, showing:—

The cost per square foot of the buildings, fully equipped, but without machinery.
The erected cost of each unit of machinery.

From this allocate to each unit in each department its proper share of capital expense by floor space occupied, and value of machinery.

Labour. Starting with the mill fully equipped, we next determine the number of operatives necessary to economically operate each unit of machinery, and a departmental standard payroll is prepared, by unit, upon a full time basis. Some operators are paid on hourly rate, others piece rates.

As some departments are so called nonproductive, such as repairs and maintenance, yard, general superintendence, office salaries, etc., these have to be later distributed over the productive departments upon an equitable basis on an expense and overhead distribution sheet.

A departmental distribution sheet is now prepared, showing the following departments:—

Productive Department—
Processes up to and through carding, processes through drawing, slubber frames, intermediate frames, roving frames, warp spinning frames, weft spinning frames, warp spooling, twisting, warping, dressing, drawing in, weaving, cloth.

Nonproductive Departments—
Storage and handling, machine and carpenter shop, miscellaneous.

An expense distribution sheet is then prepared, based upon the totals of the previous year, after due allowance for non-recurring expenses, and giving some consideration to current conditions, and on this sheet each producing and nonproducing unit is charged with its proper proportion of expense.

The productive departments are totalled separately from the nonproductive ones, and the latter are again distributed over the productive departments.

The Items of Expense

The items of expense entering into costs are:—

Labour.
Mill Supplies.
Oils.
Power—electric, water or steam.
Fuel for heating, humidifying and dressing.
Starch and Size.
Roll Covering and Belting.
Mill Offices and Supplies, and General Expense.
Depreciation—Buildings and Machinery.
Taxes.
Insurance—Fire and Liability.
Expense of Administration.
Bond Interest.
Preferred Stock Dividends.
Common Stock Dividends.
Income Tax.

and these expense items are allocated in the following manner:—

Labour. Some departments, such as card room, comprise a number of processes, and the labour in each is divided as,—

Direct Labour—Wages paid to operatives on machines.

Indirect Labour—That serving two or more processes.

DETAILED FABRIC COST

STYLE

CONSTR.				YDS. PER CUT		LBS. PER CUT		LOOM	SPEED
WARP	ENDS	%	FILLING	%	WARP	ENDS	%	LOOM PER WEAVER	
	% SECONDS			LBS. PER LOOM BEAM		SPIN'S. PER LOOM		NO. OF HARNESSES	

DATES ——>									
Weav'g Exp. per Loom Week of 55 Hrs.									
Weaving Piece Price per Cut									
Warp Drawing Price per Beam									
Per Cent Loom Production									
Production Lbs. per Loom Week of 55 Hrs.									
Production Yds. per Loom Week of 55 Hrs.									
Mfg. Cost Warp per Lb. of Cloth									
Mfg. Cost Warp per Lb. of Cloth									
Mfg. Cost Filling per Lb. of Cloth									
Slashing Cost per Lb. of Cloth									
Warp Drawing per Lb. of Cloth									
Weav'g Piece Work per Lb. Cloth									
Weav'g Expense per Lb. of Cloth									
Cloth Room Cost per Lb. Cloth									
Total Cost Except Cotton per Lb. Cloth									
Cost Warp Stock per Lb. Cloth									
Cost Filling Stock per Lb. Cloth									
Total Cost per Lb. Cloth									
Total Cost per Lb. Yd. Cloth									

General Labour—Which is labour that cannot be charged to any one unit, such as overseers, second hands, general oilers, sweepers, etc.

Mill Supplies, Oils, Starch and Size, Roll Covering and Belting—
Are charged direct from stores to departments and processes.

Power—
Distributed according to H.P. used by units in each department.

Fuel—
For dressing, charged to dressing room, humidifying and heating, according to floor space occupied.

Mill Offices and Supplies and Gen. Exp.—
To miscellaneous.

Depreciation—
Building—according to floor space occupied by each unit.
Machinery—according to machinery value of each unit.

Taxes—
On percentage of building value occupied by each unit.

Insurance—
Fire—on percentage value of combined buildings and machinery, each unit.
Liability—on percentage of payroll of each unit.

Expense of Administration, Bond Interest, Preferred Stock Dividend, Common Stock Dividend, Income Tax—
pro rated on combined values of buildings and machinery to each unit.

The charges against the productive departments are then totalled, and the charges against the three nonproductive departments, storage and handling, miscellaneous and repair and carpenter shop, are pro rated equitably against each unit.

In the case of repair and carpenter shop, however, this applies solely to those charges of a general nature, as all work done for a unit is performed on an order issued by its department and for which a charge has been made, including labour, materials and overhead.

The charges from the distribution sheet are now transferred to the departmental sheet in the outline, where we bring together Labour, Overhead and Production reduced to a weekly basis.

The process of costing now commences.

1st. Through to carding—this being a sequence of process, opening, cleaning and carding are taken as one, assuming that only one weight of sliver is made. The finished production of the card is used as a divisor into the labour and overhead to obtain the cost per pound.

2nd. Drawing—The production per delivery on each size of sliver is divided into the weekly charge per delivery.

3rd. Clubbing, Intermediate, Roving—
The production per spindle on each size of roving is divided into the weekly charge per spindle, as represented by its piece work labour, general labour and overhead.

The items from these units are carried to the Roving Cost Sheet.

The Warp and Weft, Spinning, Spooling and Twisting costs are compiled in a similar manner to the Slubbing, Intermediate and Roving.

Warping. The cost per warper is divided over the production per 1,000 yards, and this by the weight of yarn to get the cost per pound.

Dressing. The weekly operating cost per slasher is found, as the styles dressed vary according to the size of yarn and number of threads, a table is worked out from which the cost per pound is found in a similar manner to the warping.

Drawing-in. All new styles are drawn in by hand through the drop wires, harness and reeds, as are also any old styles, in which a new reed or set of worn out harness has to be replaced. As these later come from the loom, when the back beam becomes empty, the ends behind the drop wires, together with those that have passed through the reed, are carefully preserved, and, when the style is to be repeated, this set of drop wires, harness and reeds, are brought to an automatic tying machine, and tied to the ends of the new warp. The cost of these two systems is worked out on a per thousand end basis.

If the cost is, say 20c per thousand ends, and a fabric requires 3,000 ends, the cost would be 60c divided by the actual weight of the beam to get the pound cost.

Weaving. As there usually is a varying number of widths of looms in a mill, the weekly overhead cost per loom is arrived at by dividing the total cloth space of all the looms into the weekly cost, to obtain a unit cost, and then, if a fabric requires a 40" loom, the cost of forty units is taken.

The expected production in yards is divided into this cost to obtain a cost per yard, and to this is added the piecework rate for that type of cloth. This, in turn, is multiplied by the number of yards per pound to get the cost per pound.

In all cases, as the work progresses, a small allowance must be added for subsequent loss in weight, due to necessary waste made.

Cloth Room. This operation consists of inspecting cloth as it comes from the looms, brushing, machine folding, table folding, tacking, stamping and baling.

Processes are charged separately, so that when tacking and stamping are not required, these may be eliminated.

The departmental cost for each count, based upon the rated capacity per spindle, having been reached, the cost of any fabric is quickly arrived at once its construction has been determined and is tabulated upon a detailed fabric cost card that shows the construction of the cloth, full manufacturing details, its cost, and the description of the cotton to be used, and which lends itself for future changes in costing.

I am not going to take up your time with the detail sheets, report forms, etc., but diagrams of each are available should they be considered of use.

Cost of the Cotton

Given the manufacturing cost of a cloth, the next step is to add to this the replacement cost of the cotton to be used in it.

American cotton ranges from 7/8" to 1 3/8" in length, progressing in thirty-seconds of an inch, and for each length there are eleven Government standards for grade from Middling fair to Ordinary, and seven colours in each grade from white to blue stained; and, in addition, the same length and grade of cotton has different spinning values termed "character," resulting from the type of seed from which it was grown, and the nature of the soil in which the seed was planted.

The Raw Cotton Department supplies the Costing Department daily with the current prices of cotton delivered at the mills. This price is divided by the known net weight as represented by the clean cotton in the cloth, when free from tare, waste and impurities.

The manufacturing and cotton cost are now added together, and to the total, 4% is added to allow for the approximate 3% cash discount allowed the customer and 1% for cost of selling.

Once developed, this system is simple in operation, and lends itself to periodical adjustments due to any cause, such as increase of plant or variation in charges.

In our Head Office, one cost accountant, with three juniors, reviews and checks the weekly departmental production reports from our ten cotton mills, keeps the costing system up to date, and daily supplies innumerable fabric costs for the use of the Selling Department.

I may say that our costing system was developed in 1907, but, a few years ago, when tariff changes seemed imminent, feeling that costs prepared by accountants outside of our own organization might have more weight, I had the system revised by a firm of specialists in Fall River, and had the satisfaction of finding that their system, which they had installed in upwards of one hundred cotton mills, was identical with our own.

In my opinion, the department of cost accounting in industry is one of the most important branches of accountancy, and the lack of a proper and uniform system has played havoc with the cotton and woollen industry on this continent and elsewhere.

May I suggest to you gentlemen, entrusted with the important task of cost finding, the necessity of studying your work from within the plant. Know the object of each process, the qualifications and capacity of the machinery employed, so that when the weekly departmental reports reach your desk you can quickly put your finger on the weak spots and point out to the operating executive any short coming or improvement from the standard.

In the course of time, the man who can cover such ground satisfactorily will become invaluable and should be in line for an executive position.

I have another suggestion to make. Develop your association to the highest possible standard. Bring into its representatives from every possible industry. Co-operate with similar associations throughout the country with a view to establishing standardized costing methods, and then, it seems to me, that, logically, you would be the gentlemen the Minister of Finance should call into consultation when he requires information regarding the needs of any particular industry.

It has afforded me much pleasure to meet you, gentlemen, and if our organization or I can be of assistance in the future, please consider us available.

POSITIONS AVAILABLE

(Address replies to No. —, Canadian Society of Cost Accountants, 81 Victoria St., Toronto, Can.)

No. 107—Experienced cost man wanted, preferably about 35 years of age. Please give full particulars as to experience.

The Unbalanced Scales of Justice

By R. B. GRAHAM
Crown Prosecutor, Winnipeg

(Before Winnipeg Chapter, Sept. 27, 1928)

ALL Law, like ancient Gaul, is "divided into three parts," the Common Law, Statute Law and Judicial Law.

The Common Law is that great body of Law which is merely the crystallization of the ancient customs of the land as declared by Courts of competent jurisdiction.

Statute Law, as its name implies, consists of those laws which have been from time to time enacted by a competent legislative body, whether the Imperial Parliament, the Parliament at Ottawa, a Legislative Assembly of a Province or a Municipal Council, properly authorized in that behalf.

Judicial Law consists of the interpretations placed upon the Common and Statute Laws by our Courts.

In Canada, the Criminal Law is almost entirely Statute Law. In the late years of the nineteenth century the British Government appointed a commission of the ablest judges and lawyers of the old land to report upon a suggested codification of the criminal law of England. After years of heavy and valuable labour this commission made its report in the form of a draft code.

The old Mother of Parliaments is, however, very slow to change existing laws, or to put into the form of statute that which is already the recognized law of the land, and this draft code, an invaluable document, still lies in the dusty pigeon holes of the Home Office and has never been given the sanction of parliamentary enactment.

The Canadian Law

In 1892, the then government of Canada took this draft code and changing it to adapt it to our conditions, enacted it as The Criminal Code of Canada. This code, with the necessary amendments made since that date is, in effect, the criminal law of Canada to-day. It has its foundation in the Common Law of England, and is, in my opinion, one of the finest specimens of legal drafting extant. It preserves all the Common Law rights and offences and defences

and enables us when in doubt to find our guidance in the old customs of the land.

There are in its system of trial and jurisprudence generally some things, which while based upon that Common Law are no longer necessary and place the Crown under a handicap in its duty of protecting society against the criminal.

A writer in the Winnipeg "Free Press," commenting upon the Slater case, used these words,—"As against the resources of the state, what chance has a poor innocent accused of proving his innocence?"

This is a question which really calls for no answer since an accused person does not have to prove his innocence at all, but it raises an innuendo that in a criminal proceeding an accused person without money is placed in an unfair position; which is a suggestion calling for specific reply.

Chances of Accused Person

Leaving out of the argument the fact that within reason the resources of the state are, in British lands at least, used to assist the accused as well as the Crown, the answer to the innuendo is:—

The chances of an accused person, rich or poor, guilty or innocent, are approximately seven to one in his favour.

With some of the chances that operate in favour of the accused one can have no quarrel. They are eminently fair and have their foundation in elementary justice.

There are others, however, which throw the scales of Justice completely out of balance and these ought either to be abolished or the same chance given to the Crown.

In dealing with those circumstances which operate in favour of the accused, I propose to consider them in connection with indictable offences only, and in the order in which they appear in a trial.

First. There is the presumption of innocence. This, as I mentioned before, in itself constitutes a complete answer to the question which forms the basis of my paper.

The Crown must establish the guilt of the accused beyond a reasonable doubt. This presumption, which seems to exist only in countries where the law is based upon the English Common Law, is one of those chances in the accused's favour which is eminently just and calls for neither comment nor criticism on my part.

It is only just that he who asserts a fact in a case should establish it.

Second. All penal statutes are construed strictly in favour of the accused and against the Crown. This, too, is only fair, more particularly where the statute, as so many of our modern statutes are, is in derogation of ordinary rights and liberties and create offences which are not *mala in se* but only *mala prohibita.*

Third. The Crown must make full disclosure of its case against the accused. Even after the preliminary hearing, when the accused is in possession of the Crown's main case, should further evidence against him be discovered, the Crown must advise him of that evidence and give him the names of the new witnesses with a summary of the facts they are expected to prove.

Fourth. The accused is not called upon to make any disclosures at all and has only to wrap himself in the garment of silence.

These two chances in the accused's favour may in their nature be considered one and so may be discussed together. They are the two most serious handicaps under which the crown labours in a criminal proceeding.

Why the Difference?

It is, perhaps, only fair that the Crown should disclose its case to the accused, but why should he be permitted to conceal his answer to that case until it is too late for the Crown to reply? Once a person is accused of a crime, he becomes almost sacred and is protected by that very law which he is accused of having violated from the prying curiosity of the police, who after all are the officers charged with the protection of society against the criminal. Not until the Crown can show that statements made by an accused to an officer were made voluntarily and not through the natural and perhaps proper efforts of the police to secure information, may such statements be given in evidence against him.

Undoubtedly, the reluctance of Courts to receive in evidence statements made by an accused to an officer has its birth in the natural distrust of confessions wrung from prisoners by torture, but the day of thumbscrew and rack has long gone by and not even the most vindictive prosecutor would ask that admission obtained by duress or unfair means should be received.

There seems, however, to be no reason why an accused should not be questioned by a proper officer or tribunal as to his movements at the time of the crime and as to his connection with it. If the accused is innocent he will surely welcome the first opportunity of disposing of the suspicion against him, while if he is guilty he should not be protected.

Surely we are as concerned in protecting society against the criminal as we are in protecting the property of the individual members of society, yet in a civil action involving only a small amount of money, both parties must make full disclosure through examination for discovery and production of documents while in a criminal prosecution no matter how large the amount or how serious the issue the accused may not be questioned, he has only to remain silent and may even conceal or destroy documentary evidence.

Should the Crown come into possession of the books of, say, a fraudulent bankrupt, since in a criminal proceeding the accused may not be examined, it is in most cases impossible to bring home to the accused responsibility for or knowledge of the entries in the books. This applies with even greater force where the books are those of a corporation and the accused is an officer or a director of the corporation. There does not seem to me to be any reason at all why the preliminary hearing might not be made to serve the same purpose as an examination for discovery in a civil matter and the accused be called upon to disclose his defence then.

The result of this would be a great reduction in the number of criminal trials, since knowing that he must disclose his defence, a guilty man, having none, would probably plead guilty, while a greater number of cases would be dismissed at the preliminary.

Challenges to Jurors

The fifth point at which the scales are unfairly weighted against the Crown is in the matter of peremptory challenges to jurors.

An accused person is entitled to challenge peremptorily from four to twenty jurors depending upon the offence with which he is charged while the Crown may challenge peremptorily only four in any case.

True, the Crown may require that any juror up to the number of forty-eight shall stand aside until the number of those who have not been challenged is exhausted, but this

right is of doubtful value since a juror who has stood aside may not be challenged by the Crown, except for cause and the peremptory challenges may then have all been used.

I have never been able to fathom the reason for this discrepancy in peremptory challenges, at least in the present day when the jury is selected by municipal officers and judges over whom the Crown has no control. It may possibly be a survival of the day when the jury was chosen for the trial by the sheriff, a Crown officer who might conceivably be biased against the accused.

The sixth "chance" in the accused's favour is one in glaring contrast with civil actions—the verdict of the jury must be unanimous while in a civil action a majority is sufficient. True, a division results only in a new trial, but two divisions are considered equivalent to an acquittal.

Appeals

The seventh "chance" and with the possible exception of the matter of disclosure, the one most unfair to the Crown is the state of our law with regard to appeals.

Prior to the amendment of the Code in this respect in 1923, the verdict of the jury was final as to the facts. Either the Crown or the accused, however, might request the trial judge to reserve for the opinion of the Court of Appeal any question of law arising before or during the trial.

This placed both parties upon a parity. In 1923, however, Parliament repealed the provisions of the Code with respect to reserved cases and substituted therefor the present sections 1012 to 1021, based apparently upon the English Court of Appeals Act.

These sections give the convicted person a full appeal on both the law and the facts, while the Crown has no appeal whatever except against sentence.

Had a provision been inserted giving the Crown a right of appeal upon points of law no serious criticism could have been aimed at the amendment, since if a jury find the facts in favour of the accused, the Crown ought to accept that verdict even though its officers might feel that it was manifestly incorrect, but to leave the decision of very important points of law practically to the trial judge is unwise and to deprive the Crown of any remedy for what may be a glaringly wrong decision on the law is manifestly unfair.

Of course, the trial judge under the circumstances is impelled to exercise great care in deciding the law during

the trial, knowing that his ruling, if against the Crown is final, but since the question most frequently raised is as to the admissibility or otherwise of certain evidence which must be decided at once, the greatest care cannot prevent error occasionally and the ruling is that merely of a single judge, unreported and not binding on others, with the result that there is no uniformity of decision, and the same evidence may be admitted in a trial in court room number 1 and rejected in a trial in court room number 2 with no means of correcting the erroneous ruling.

But the admissibility or otherwise of evidence is not the only point of law likely to arise in a criminal trial.

In the case of *Rex* v. *Nelson,* better known as the Strangler case, the judge raised a very nice point of law in connection with the challenges.

The defence had challenged a juror for cause, the triers found against the challenge and the defence then challenged peremptorily, when the judge called counsel's attention to sub. sec. 2 of sec. 931 of the Code, which provides that if the triers find against the challenge, the juror shall be sworn. He expressed doubt as to whether, the section being mandatory, the Court could do anything except swear the juror. After dicussion in the judge's retiring room the defence was allowed to challenge peremptorily.

In that particular case, the point was merely academic since the Crown was quite content that the juror should be challenged, but one can imagine similar questions of great importance and of great doubt arising and being decided against the Crown, and even though the Judge himself may have doubts as to the correctness of his decision, there is no possible way of having it reviewed.

When the appeal sections were inserted in the Code, I thought that this manifest and absurd omission was a mere oversight and that the attention of Parliament had merely to be called to it and would be corrected.

Up to the present, however, although I understand that the Department of Justice has made more than one effort to have the Crown given a right of appeal upon the law, the Senate has always rejected the bill.

The chances then of an accused succeeding as against the Crown are seven to one, and the one against him is not always operative. That is the fact that usually the resources of the Crown are greater than those of an individual.

Of the seven chances in his favour three, namely, the fact that the accused is not called upon to make any disclosure, the matter of challenge, and the absence of any right to appeal on the part of the Crown are manifestly unfair. If the scales of justice are to balance these weights must be removed from the pan which the Crown must lift.

Our criminal law has too much thought for the individual and not enough for those whom it is expected to protect.

In a state of barbarism, the desires of the individual may have full sway, but when society is organized even the personal rights of its individual members must give place to the common good, and it is surely to the common good that in the struggle between society and those who prey upon it, the hands of the prosecutor should not be tied behind him, but should be as free as those of the accused.

So and so only may the scales of justice be made to balance.

Investigations Into Office Methods

By W. DESBOROUGH

(Before the Office Machinery Users' Association, London, Eng., Oct. 10, 1928)

(From *The Accountant*)

I FEEL very strongly that the subject of my lecture is of more vital importance to office machine users than even a knowledge of office machines. I do feel that too much attention is devoted to investigating office machines and considering how they can be super-imposed on the existing system rather than studying the general methods of the office and considering whether radical changes are not necessary. Let me hasten to assure you that the major part of the advantages and economies which are secured from the introduction of machines are frequently due to the change or simplification of the methods rather than to the machines themselves.

Tremendous progress has been made in the development of office machinery during the last ten years, and machines

have now passed from that stage of development in which they served merely as adjuncts for facilitating the carrying out of existing processes. Present day machines enable operations that were hitherto performed separately to be combined. Further, they generally afford a more positive control, and figures and data which were formerly produced monthly can be more readily produced daily. The result is that considerable study has been devoted to office technique, and I believe it is fair to state that office technique to-day is in advance of the development of machines. The field for the use of machines is daily widening and it now frequently happens that we ask for features on machines which have never been contemplated. Office technique is now actually stimulating invention by making demands beyond the capabilities of existing machines.

I believe that old-fashioned methods with pen and ink posting, mental addition, and heavy cumbersome bound books only persist to-day because the average office manager having failed in his endeavours to superimpose office machines—because he is ignorant of modern office technique—concludes that machines are not suitable in his particular office. Not having the technique to investigate office methods, although he may be able to investigate office machines quite well, he fails to realize that a radical change in his office methods is essential.

This leads me to assert that the office user to-day must not only be cognisant of the capabilities and potentialities of office machines, but he should have a good general knowledge of modern office technique and, most of all, be able to investigate the work of an office.

Stages in Investigation

Any investigation into the work of a particular office must be made systematically and should take place in the following stages: Enquiry into

(1) The general scheme of organization.

(2) The system of operation in each branch or department.

(3) The processes used in carrying out departmental systems.

(4) The allocation of work in the departments.

(5) The individual efficiency factor.

I will now deal shortly with each of these stages.

(1) *The General Scheme of Organization.*

The first step should be to determine whether the framework is that best suited to produce the required results with most efficiency and economy. This can only be done by a careful survey of the structure and of the requirements of the particular business in consultation with the manager. Attempts have been made from time to time to sketch ideal framework for office organization, and although something could be set out for any particular type of office I suggest that any general rules which could be laid down as applicable to different classes of business are so few that no generalization on these lines is advisable. We must therefore, in considering the general organization, base our conclusions not on any ideal framework, but on application of common-sense factors to the requirement of the particular business.

(2) *The System of Operation in Each Department.*

All sytems must be judged primarily from the point of view of efficiency and economy, and from two aspects simultaneously (1) that of the department as a separate unit, (2) that of the department as part of a co-ordinated whole. I suggest that if investigation is directed to the economy of method no separate consideration of efficiency will generally be necessary as modern methods and machines can generally be regarded as necessarily leading to efficiency. The latter factor, however, must be considered separately when deciding as to how far economies can go.

As regards economy in system generally it will be found that most of the economies which can be introduced will result from two rather peculiarly contrasted operations:—

(1) Duplicating processes—that is, producing in one operation more than one necessary result, and

(2) avoidance of duplication.

As to duplicating processes I am confident that the possibility of saving labour by writing or typing all the entries required for various books or departments in one operation has yet to be thoroughly investigated. By making up the various forms into fanfold or interfold stationery and passing them through a Paragon or Egry register for handwriting or through an Elliott-Fisher or Underwood for typing considerable economies can be effected. There is of course the further point that only one checking is required

for documents produced in one operation, and that every time anything is copied there is the possibility of error.

Another type of work which I include under duplicating is carried out by those machines which derive their utility from the fact that they perform simultaneously two or more operations of different characters. For example, the bookkeeping machine writes figures and casts them. In addition the machine may simultaneously write the entries for several books or purposes. Machines of this type are going far to revolutionize bookkeeping and will form a much more important landmark in the history of accountancy than even the double-entry system. I made this statement 15 years ago and it was received as the opinion of an enthusiast crank. But as the Midland Bank is now changing over entirely to machines, and other big banks will probably follow, I think the economy and the efficiency of producing the more than one necessary results in bookkeeping in one operation by machine are now firmly established.

Now for the contrast—the avoidance of duplication—that is, to avoid copying or indeed writing anything which has already been written. A good example of this often occurs with travellers' orders. The traveller makes out a lengthy order with the name and address of the customer, of which a number of copies is immediately made for headquarters. Consideration should be given to his making the necessary copies in manifold or to using a special pencil so that his order forms the master copy from which the necessary number of copies can be produced at headquarters on the Facsimo or Ditto machine. A more striking example of the avoidance of duplication and one which led to considerable economy was recently introduced by the Post Office Savings Bank. I will describe this case specifically because it is a method which has been and can be applied to all kinds of commercial work.

Until recently, if you made a savings bank deposit or withdrawal at a post office other than the office where the account was originally opened the girl behind the counter entered the transaction on to a cross-entry account sheet. These sheets might contain entries from a number of offices. When these forms reached the savings bank it was impossible to pass them down the ledger sections for the various sections to extract their entries, so every line on the cross-entry sheets was copied on to slips of paper which were sorted to their appropriate ledgers. The very simple pro-

cess of writing the cross-entry transactions on the sheets in the post offices has been changed to an equally simple process of writing them in duplicate on sheets the lines of which are spaced about 1½ inches apart. The top copy on receipt at the savings bank department is now guillotined and sorted to the divisions while the under copy affords the means of producing the daily control balance.

Having considered the efficiency of all the systems we must then inquire how these link up. In this connection it is very important that failures or errors on the part of one department should, whenever possible, be capable of being brought to light by control in another department. This does not mean that any processes should be repeated but rather that overall controls should govern every section of the work.

(3) *The Processes Used.*

Having satisfied ourselves as to the efficiency or otherwise of the system of operations, and further, after having generally formulated what we consider to be the best system for the particular office, we must consider the processes involved. In doing so we must ask ourselves the following questions concerning each:—

(a) Is it necessary

(b) Is it being carried out in the best possible way?

(c) Can it be combined with another in the same or possibly in another department?

(d) Is the material provided ideal?

(e) Is the product exactly what is required?

(a) *Is it necessary?* You may think that it could be taken for granted that the answer will be "yes" in every case, but experience teaches otherwise. You will find that in a number of cases certain processes are carried out and results obtained which are quite unnecessary, either in themselves or to provide information on which to base another process. These processes have probably been carried out for years and doubtless at one time were necessary. A change of system very likely removed the necessity for some other process, but this one, which was an underlying process of the one removed, escaped the carelessly wielded axe which was then applied. There is another class of work concerning which this question should be put very carefully, that is checking. We find in many offices that a hundred

per cent. check of certain classes of work done takes place. A hundred per cent. checking may sound efficient, but in many cases it is not necessary, and I am quite certain that in many cases control, spot or test checking, which is very much less costly, is quite as efficient. Again, particular attention should be given to costing and statistics departments to ensure that all the data produced is information actually required by the management. There is, of course, a tendency to produce more than is required, especially when some of the modern machines are let loose. Inquiry should therefore be made whether proper and effective use is made by the management of the information. Such inquiry may lead to the production of fewer but more vital figures. In actuarial work particularly there has been a great development in the technique of "sampling" and in certain industries approximate methods in costing or alternatively omnibus figures often give quite satisfactory results and avoid the tabulation of masses of detail which do not affect the main costing figures in the slightest degree. I have seen many cases where daily figures are produced in great detail for the managers of various departments, who merely look at the totals and disregard all the detail.

(b) *Is it being carried out in the best possible way?* We then pass to the consideration of the means adopted, and it is, of course, here that most opportunities for reform can be found. Here we must consider the possible application of such process improving machines as calculating machines, addressing machines, duplicating machines, machines for dealing with incoming and outgoing mail, and many others.

I could give you hundreds of examples of advantages and economies secured merely by introducing process improving machines. One small example discovered quite recently will suffice. In a certain office ten clerks were employed on rather trying accounting work which involved from two to three hours being spent on calculations. This work was being performed by Fuller's Slide Rules. We soon demonstrated that by taking away the arithmetical part of the work it could easily be performed by one girl on a calculating machine. We therefore added one girl and one machine to the office but we took away four clerks.

Also loose-leaf and modern filing systems will have to be kept in mind. The development of loose-leaf and card indexes from index material to ledgers and books of account,

although a great outstanding improvement applied to office technique, was comparatively slow, but it was undoubtedly hastened by machine bookkeeping. The use of machines with bound books cannot effect much advantage or economy. The bound book even with ink-pot methods has very serious limitations, but with machines it offers almost insuperable difficulties. Except in very special circumstances, therefore, the abolition of bound volumes is one of the first steps in improving the processes. You will probably be told that with the unit system you will get lost sheets or cards, substituted accounts and other terrible contingencies, and that such things could not be used for accounting. Surely it is fair to say that the experience of large firms and eminent accountants demonstrates that in practice loose-leaf and card records perform their functions in a much more economical and efficient way than ever did the bound books, and that in nine cases out of ten a record should be in loose-leaf or card form. Apart from these there are many small and apparently unimportant details involving manual and mental operations which can sometimes be improved, and it is surprising what economies can be effected by attending to these little things. There is also and very frequently another source of waste which we shall find at this time. We shall ascertain that modern machines have been installed which in themselves were capable of leading to economy but which, if merely dumped down in an office and used either indiscriminately or without proper control, can in fact lead to considerable waste.

As an example the typing processes of every office should receive very careful investigation, because typewriting is an excellent example of a modern process which, unless carefully controlled, can lead to a great deal of waste.

The cost of typewriting in most concerns is a rising cost out of proportion to the other departments. The reason for this is that there is a great tendency in most offices to require more and more paper work to be done. I consider that much unnecessary typing work is generally performed and the typing section should not accept work unchallenged from any and every clerk in the firm. If you go so far as to cost the typewriting I am afraid you will receive a shock. I consider that typewriting in the average office costs far too much. I cannot to-night go into details because it is a very wide subject, but I do ask you to direct your attention to pooling or centralized typewriting, to records of work and

output, to an investigation into the actual operations, to the use of form letters and to the general simplification and reduction of the work performed.

Under typewriting you will have to consider duplicating machines. Now the duplicating machines of to-day should be considered not only as labour saving devices but as a means of cutting down printing costs and affording a means of reproducing documents with great promptitude. My experience of duplicating work both in commercial and government offices indicates that it is invariably capable of very considerable improvement, and the chief obstacle to its more general use is the imperfect and defective quality of the work turned out. The investigator must pay particular attention to the duplicating section apart from the point of view of defective work or waste. The efficient duplicating section may require even greater attention than the inefficient. When it is known that copies of any old document can be obtained for the mere asking there is a tendency to rush into type masses of matter which should never be circulated. The common case of a manager who requires 80 copies of a document, orders 100 because it is going to be duplicated, and the typists produce 120 for safety should emerge from an investigation and steps taken to prevent it. Also the production of notices and minutes of meetings, for various golf clubs, tennis clubs and associations often not connected with the firm should be discouraged.

(c) *Can it be combined with another in the same or possibly in another department?* We must now consider whether any of the operations necessarily carried out can be performed at the same time as others which have already been done. This consideration will lead us to some extent to cover the ground which was already covered under departments and systems, but we shall find that a reconsideration at this stage and in more detail will be remunerative. Previously we probably confined our consideration to the duplication of complete processes. We must now give our attention to the possible duplication of part processes and operations. We shall find that considerable economies can be made by, for example, preparing slips for numerical and subject indexes, also for the jacket and letter book in one operation. The writing of sets of forms, even of varying sizes, by the Elliott-Fisher or other machine is another common example.

(d) *Is the material provided ideal?* We now have to consider whether the material on which the process is based is ideal. For example, multiple shops and firms with a number of branches collect periodical information in various forms of report or returns. So do government departments! It is quite usual to leave the lay-out of these forms to the printer to make them look as nice and well-balanced as usual. But you will want to be satisfied that the material so furnished is suitable for subsequent handling. You will have to see that these forms are designed so as to secure

(a) easy completion without liability to error;

(b) that the information is presented in such a form that suits efficient extraction or perhaps laying out for casting.

I saw some wonderful American forms recently. They required analysis of certain information into over 60 headings crosswise with over 100 categories vertically. The result was that clerks filling them up frequently put their figures in the wrong box, and when these forms were received at headquarters for aggregating they had to be copied into analysis books and then cast. Now properly designed forms with suitable leads, would have secured more accurate returns and the analysis books could have been cut out.

(e) *Is the product exactly what is required?* Lack of co-ordination between departments frequently produces most lamentable results in this connection. For example, we recently found that huge books were being produced in hundreds of offices throughout the United Kingdom once a year for the benefit of other offices. We found, however, although this may surprise you, that the first and only use made of these books in the other offices was to provide the material from which copies in an entirely different form were immediately made out. The reason for this was that the form in which the books were made out in the first office was entirely useless for the second office. It is, of course, quite probable in some cases that it will not be advisable from the point of view of economy to give the using department exactly what they would like. It may cost less in the end to give them something approximately to their requirements in order to reduce the cost in the originating department. To ascertain whether this is the case the relative costs in one department and expenses in another must be gone into.

Before leaving the subject of these processes, I should like to give a word of warning that in reviewing the processes of work you must bear in mind that a system put in a year or so ago (even by an eminent accountant) should not be taken for granted. The circumstances of an office may alter considerably and processes once absolutely essential may later serve no useful purpose. Again the original system may have been planned for a small volume of work, and a system that works well when the volume is small might be incapable of meeting the requirements of great or even moderate expansion. Further, office machines are being improved almost daily and it may pay to scrap the existing machines in favour of others giving a greater output or performing more operations. Simplification and the cutting out of unnecessary processes, of which there are thousands in office work, must always be in the foreground in the work of office investigation.

(4) *Allocation of Work to Individuals.* Careful investigation should be given to the allocation of work to individuals, and you will invariably find that a certain amount of routine work is being performed by higher paid staff. This is often noticeable in an accounts or statistics section where each of the clerks spends, say, two hours per day casting and calculating figures. It would obviously be quite wrong and probably no economy would be effected by giving each of these clerks a calculating machine. The proper course would be to separate the arithmetical part of their work and have it done by machine, when economies could probably be effected. You should analyse the work of the clerks and assign to the various classes of work the average time spent.

By segregating routine operations you not only relieve the clerks of work for which they are probably paid on too high a scale, but by massing such work you will probably not only get it performed more efficiently and at a higher rate, but you will make the employment of machines not only practicable but economical. Again, shorthand typists are frequently employed for two or more hours per day in plain copying work which could obviously be done by juniors or by copying typists.

(5) *Individual Efficiency Factor.* Generally speaking an officer investigating an office will only deal with the per-

sonal-efficiency factor as regards the carrying out of mechanical and routine operations. The factor as regards the carrying out of the higher operations can only be dealt with by a close study over a long period, and this is a matter for the management. But the personal-efficiency factory of the supervisors or chief clerks will certainly have a bearing on the individual efficiency of the staff under their control. I do think, however, that it is sometimes a mistake to judge an office on the individual efficiency of the staff. The standard of personal efficiency may be very high, but office standards of to-day must be based primarily on efficiency of method. A high average output of work may result in a very low office efficiency factor. For example, if the clerks in a certain firm post by ink-pot methods 150 accounts per hour it is quite wrong to assume that because such an extraordinary output is obtained that the office is very efficient. What becomes of their efficiency when someone comes along with a machine system which will post 250 and at the same time perform operations which the clerks now do as subsequent processes. There is not the slightest doubt that thousands of office workers are to-day working much below their full efficiency level because they are using wrong methods, and because they are working to accepted standards of output which have never received the microscopic stopwatch study such as Mr. Hutchinson would apply. I would urge careful study of all mechanical or semi-mechanical work with a view to eliminating waste effort and labour.

The elimination of waste in clerical processes is now the problem in offices that it was and still is in industry. It is the detailed analysis of office work that proves so invaluable and invariably brings to light pieces or even whole lumps of work that serve no useful purpose. Motion study and attention to the smallest detail will often offer surprising results in speeding up output of office work. In one case by these methods we speeded up an accepted output of 700 per hour on adding machines to 2,000, and when I say that 60 machines were employed the economy effected will at once be apparent. Mr. Hutchinson also can give you the excellent results that he has obtained in this direction.

Again, lay out of the staff, furniture provided—such as proper chairs and tables, lighting, etc.—will affect very materially the output of work.

But do not judge an office on the excellence of its equipment or the apparent hard work of the clerks. An experienced motor engineer can judge a motor engine by its appearance and by hearing it run. While I admit a certain amount of judgment of offices by intuition I must say that even long experience teaches that only by a very careful investigation of all the details can the efficiency be measured.

Applications of Machines

The investigator and the machine user should always be up to date in the developments, not only in office machines themselves but particularly the applications of machines. This, in my opinion, is where the Office Machine Users' Association can be of the greatest service. For example, although the addressing machine was originally produced primarily for addressing envelopes it has now been developed and can be used for a great variety of purposes not usually associated with addressing. Particularly its use should be considered for placing names and addresses on dividend warrants, rate, gas and other accounts, statements and invoices; also for listing the names and other fairly constant data on wages sheets, time clock cards, job cards, pay envelopes, etc. You will have to study all the possible uses to which such a machine could be applied because the types, and the volume, of the work to be performed will form the main determining factor in your choice of machine. Some machines are unsuitable for certain kinds of work, for example, some cannot give unlimited and quick cut-outs, and some cannot list with the dead accuracy required for some types of work.

Again, the use of the adding listing machine is now fairly general, but few people have any real idea of the variety of uses to which such machine can be put. The complicated bookkeeping operations performed by the Burroughs machines are only adaptations of the old familiar Burroughs, yet how many concerns consider that they are very efficient because they use a Burroughs and add up columns of figures on endless lengths of paper. The Burroughs roll should always be a signal to the investigator for further inquiry. Could not a machine be used for posting or writing the figures now probably done by hand? Machines can write figures much faster and clearer than clerks and the casting is done simultaneously. We also have very definite

data to prove that the percentage of error when writing by machine is much less than by handwriting, and also that the liability to post to the wrong account is much less.

After the Investigation

Having made your investigation you will, of course, draw up your report, which will probably embody a new scheme of work. In this scheme you will doubtless obtain all the help you can from the office machine firms concerned. But you will hesitate to introduce any machine unless some tangible advantage or economy will result. It is obvious that against the capital expenditure on any new machine must be set the savings and advantages that will accrue. It may surprise many of you to learn that the capital expenditure on office machinery is almost invariably recovered within the first year by savings in staff and very frequently within a few months. Your scheme will possibly involve a certain disturbance amongst the existing staff because you will naturally void employing highly paid clerks or elderly men on machine or simple routine operations. This reduction or degrading of staff is frequently a stumbling-block, especially in old-established firms who are paying good dividends, but modern methods must be introduced if the office is to be run economically, and it is inevitable that modern practice must revolutionize the office in the same way as it has in industry. It is only a few years ago that well paid lawyers' clerks wrote all the deeds by hand, and many of them objected very strongly when typewriters were introduced. Even to-day some old-fashioned business men object to the mechanical method of answering letters.

The introduction of machines may or may not mean reduction of staff, but the matter will have to be faced.

Then you may find that some of the staff, even junior girls, will object to using machines. They may argue that they are clerks and not machines. You will have no difficulty in dealing with this attitude because the operation of most machines to-day is surely to be preferred to many of the routine operations that the clerks now perform by hand.

Lastly, the time will come when your scheme is accepted by the management. If there is any doubt as to its practicability it is often a good thing to have a trial run for a period. The best and most reliable experiment is to double bank the whole or a section of the work for a week or a

month. If you can put in a girl and machine into a section and duplicate the work now being done by four or five clerks it is usually the most convincing argument possible, especially if the work is performed much more clearly and with fewer errors.

When your scheme is finally accepted you should see that all its details are carefully nursed in the first stages. You may have to contend with little snags and difficulties not provided for in your original layout. You may have to modify your scheme very materially and you may have difficulties purposely introduced to defeat you. But, of course, you will not hesitate to get all the assistance and training you can from the office machine firm, and if necessary scrap your scheme and put up another.

I hope that I have said sufficient to convince you that any time spent in investigating office work will be well repaid, because I feel confident that very few offices can stand a close investigation, and most offices have a great need for improved methods and machines. Up-to-date methods and machines will not only effect considerable economies, but will increase efficiency. The importance of office technique and machines has as yet only been very partially appreciated, and I hope that British enterprise will not suffer either from a lack of appreciation of their importance or from a failure first to study and investigate them and then to utilize them to the fullest possible extent.

Production Costs on the Farm

Some of these days there is going to be a splendid opportunity for a bright cost accountant to check up farm costs, and perhaps thereby to produce radical changes in farm methods. Of all occupations, farming probably is the one where labour is most lavishly wasted. Manufacturing has sought every mechanical aid, and sometimes has gone too far in the use of excessive equipment which does not pay for itself. Now with tractors, reaper-threshers and a dozen other devices for sale, agriculture is following the same path. As a consequence, there is a great deal of uncertainty as to just what equipment will pay and what will not pay. The farmer will have to consider interest, depreciation, motive power, volume, and the number of his products—all these things which enter into the cost of manufacture.

The governments, agricultural colleges and other organizations concerned with the welfare of agriculture are studying these matters.

PRODUCTION COSTS ON THE FARM

In our January issue we printed an address on "Costs in Crop Harvesting," which represents the result of such a study, and, though not directly concerned with the type of work in which most of our members are engaged, it should be interesting reading.

Here is another extract along the same line, taken from the agricultural page of a daily paper:—

"Only 800,000 farms out of a total of 6,500,000 in the United States are profitable, according to Virgil Jordan of the National Industrial Council Board, who at a meeting of the American Farm Economic Association in Chicago expressed the doubt that the present system of small owner-operated farms might not be the best one.

" 'We shall sooner or later have to face and answer the question whether the small independent farm is the size of productive unit and the form of productive organization best adapted to the new condition of agriculture,' says Mr. Jordan. 'Dogmatic statements on this question at this stage are silly. We simply have not enough experience to know whether anything paralleling the corporate organization in business is possible in agrculture, or whether we want it if it is.'

"At this meeting it was reported that chain farms operated by some of the banks and insurance companies had proved remarkably successful. It was found that, where an average farm in the district produced 40 bushels of corn to the acre at a cost of $26, on the chain farm 70 bushels were produced to the acre at a cost of $29. There was a return on the investment in the farms of from 6 to 13 per cent. Other experiments have shown somewhat similar results.

"These chain farms had been taken over as a result of the agricultural depression a few years ago, when many people found they could not hold their property with land and produce prices tumbling. In Central Illinois one tract of 7,500 acres, involving 32 former separate holdings, is being handled along chain production methods, each farm being operated by a tenant under the direction of a general superintendent."

The Poultry Department of Cornell Unversity has studied the cost of keeping hens. That is, keeping hens for profit, not the amateur pastime which used to be popular before the days of the motor-car and the radio. The department finds that, as a straight commercial proposition conducted on a large scale, it takes two hours of man labour each year to care for a hen. According to this, a flock of 1,000 hens would require only 5½ hours of a man's time each day. We presume that this survey was confined to poultry farms where there were a lot of birds. With a smaller flock, the time per bird would be increased proportionately. Even on a commercial farm, however, the plant would have to be well planned for economy of labour to allow one man to do all the work in connection with a flock in the time mentioned. On the other hand, with all conditions favouring, a man might care for several thousand birds in his full time. Out on the Pacific Coast there is a poultryman who made himself famous by running a one-man plant of 6,000 layers. There the climate favoured such an undertaking. Near Toronto there is a plant with around 2,000 layers handled by one man. He is an exceptional worker. It is safer to assume that one man can comfortably and satisfactorily care for a thousand bird plant.

CHAPTER NOTES

TORONTO

Toronto Chapter had just the one meeting in January, on the 23rd, addressed by Professor R. R. Thompson of McGill University, and vice-president of our Society. Professor Thompson presented "A General Review of Accounting Practice." giving particular attention to comparative summaries intended to show the development of a business over a period of years. His address was full of practical suggestions, and Toronto Chapter was well pleased to hear from Professor Thompson, who had not been here for some time.

MONTREAL

Far into the night went our meeting of January 24th, for when Mr. Lortie, following the excellent address of Mr. Nellis, presented his able paper on the Balance Sheet, he broached a subject near and dear to the hearts of a great many of our members, and the ensuing discussion waxed warm and long.

H. P. Nellis, Assistant Treasurer of the Dominion Rubber Company, Limited, was the evening's first speaker. His outline of "Accounting Control in the Rubber Industry," complemented the presentation of his confrere, J. Graham Barrow, at our last meeting, and proved an apt introduction to the seventy-fifth anniversary of the Rubber Industry in Montreal. Mr. Nellis very carefully covered the accounting system adopted by his Company, in the efficient control of the records of production, administration and distribution, and applied them to their central office, their factories and their numerous branches. The Chapter members showed great interest in the exact classification and location of accounts, possible through decimal numbering.

L. P. Lortie, C.A., C.P.A., of Lortie, Dufresne & Company, presented a thorough "Study of a Balance Sheet." He discussed the Balance Sheet from numerous angles—its functions, its duties and its appearance. He exhibited very carefully executed slides, showing different forms of Balance Sheet make-up which he had encountered in his own experience, or which were recommended by authoritative Accounting Boards. The enlightening and lengthy discussion which followed, displayed the interest taken in the subject presented.

HAMILTON

The meeting of Hamilton Chapter for January 23rd, was postponed until the 24th, so that Prof. R. R. Thompson, of Montreal, might substitute for the Research Committee of Hamilton Chapter The latter is understood to be still involved in inquiries which have to be polished off a bit before being suitable for presentation. Professor Thompson was in Toronto on the 23rd to give an address there, and he was good enough to include Hamilton in his visit, giving an address on the preparation of financial statements which was very helpful.